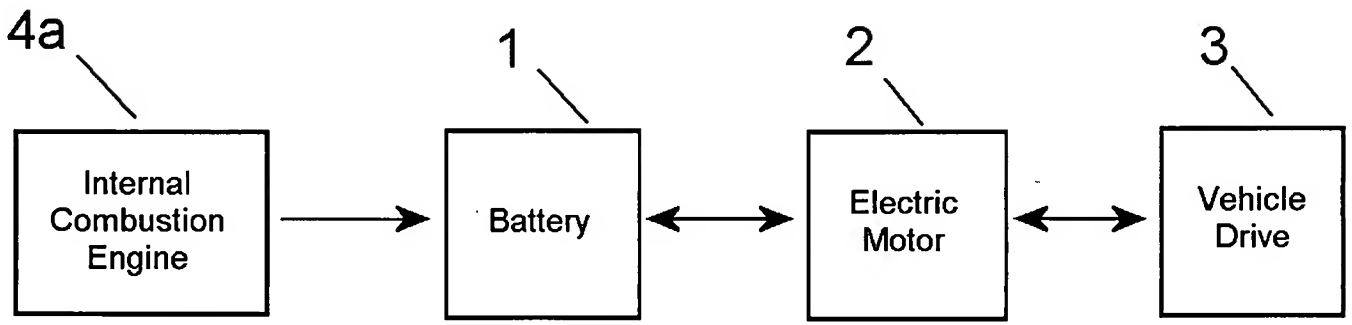


Figure 1

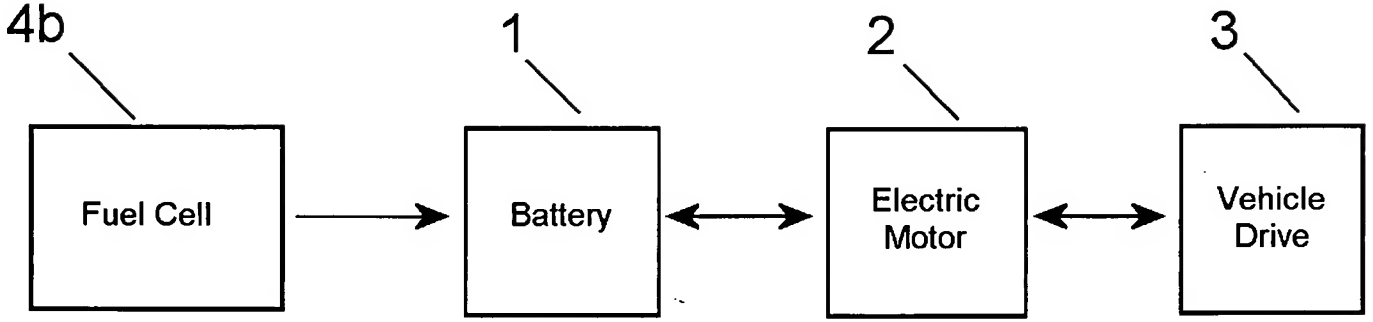
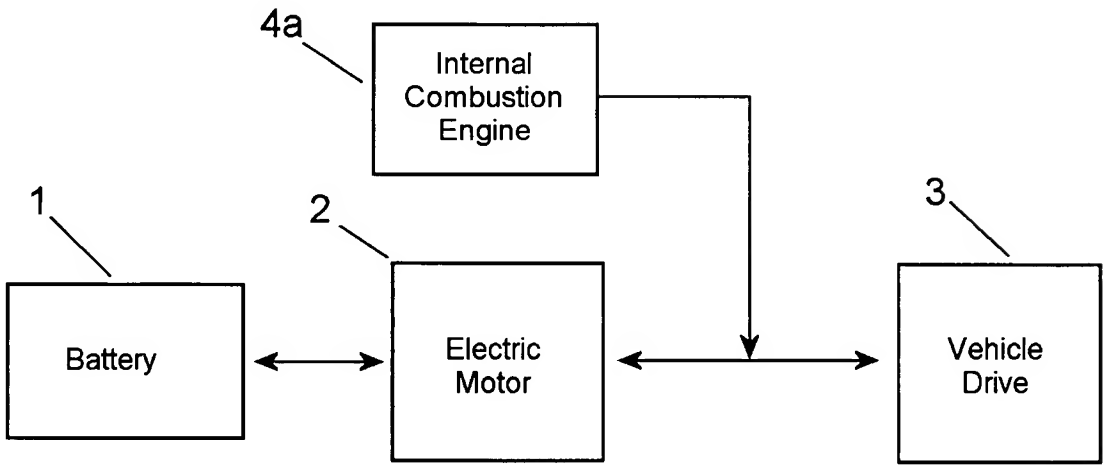


Figure 2



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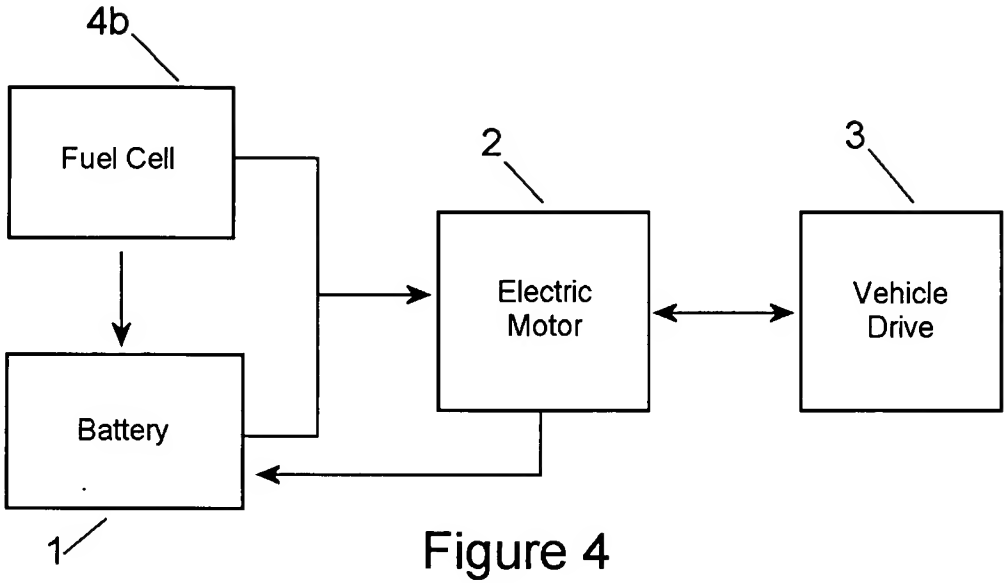


Figure 4

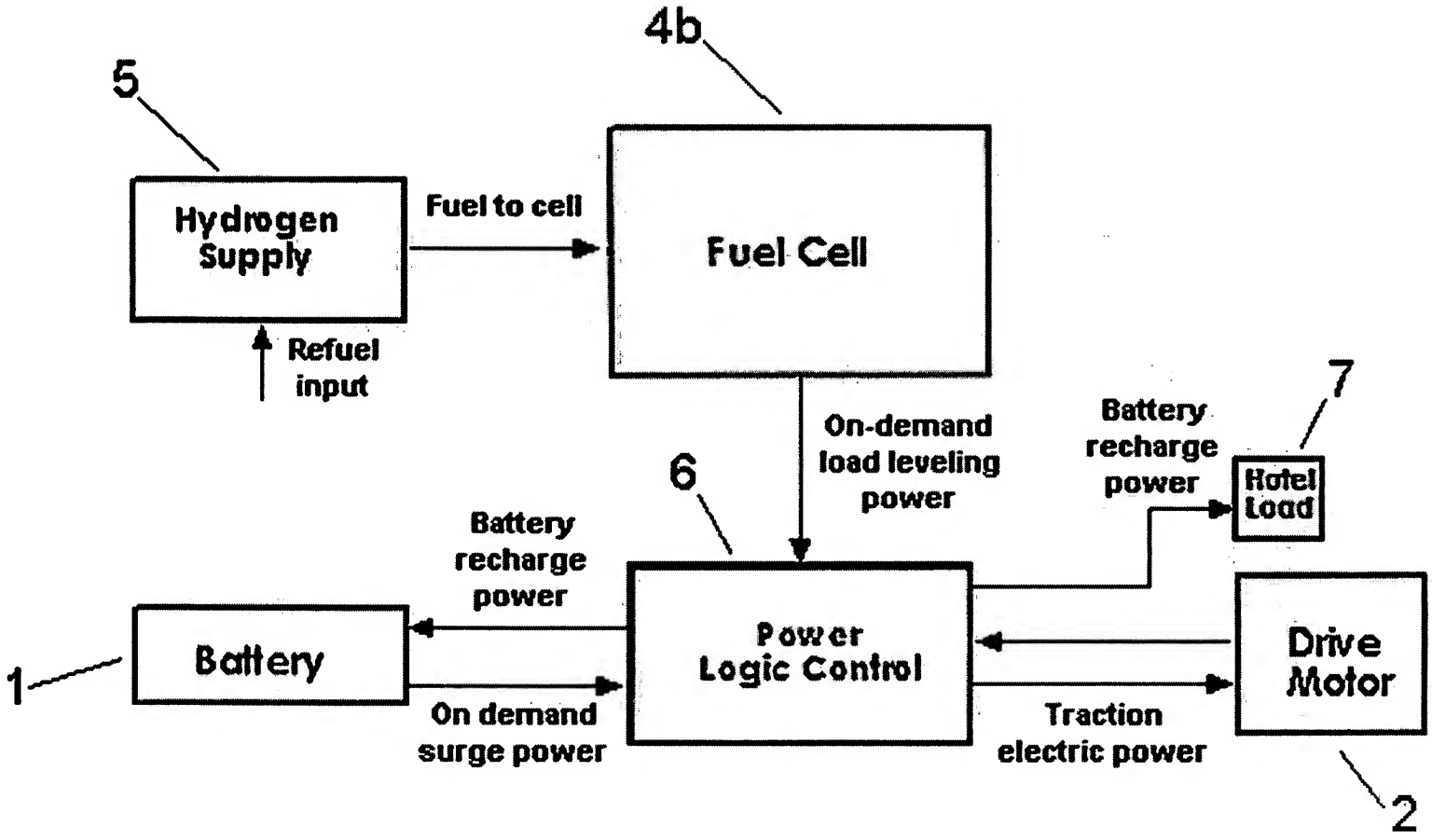

4b
5
Hydrogen Supply
Fuel to cell
Fuel Cell
Refuel input
On-demand load leveling power
Battery recharge power
7
Hotel Load
6
Battery recharge power
Battery
1
Power Logic Control
Drive Motor
On demand surge power
Traction electric power
2

Figure 5

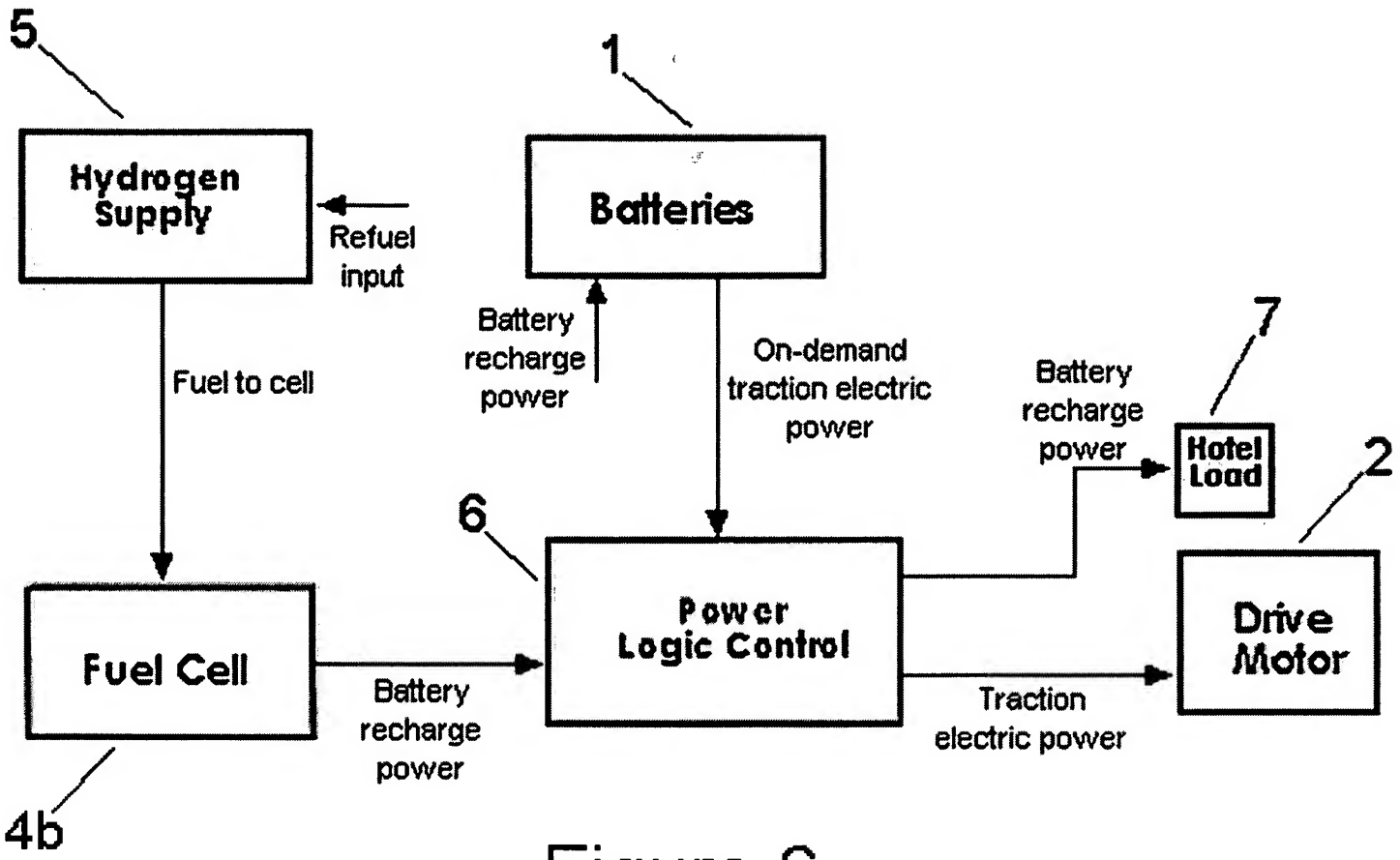

5
Hydrogen Supply
Refuel input
1
Batteries
Battery recharge power
On-demand traction electric power
Fuel to cell
7
Battery recharge power
Hotel Load
2
6
Power Logic Control
Drive Motor
Fuel Cell
Battery recharge power
Traction electric power
4b

Figure 6

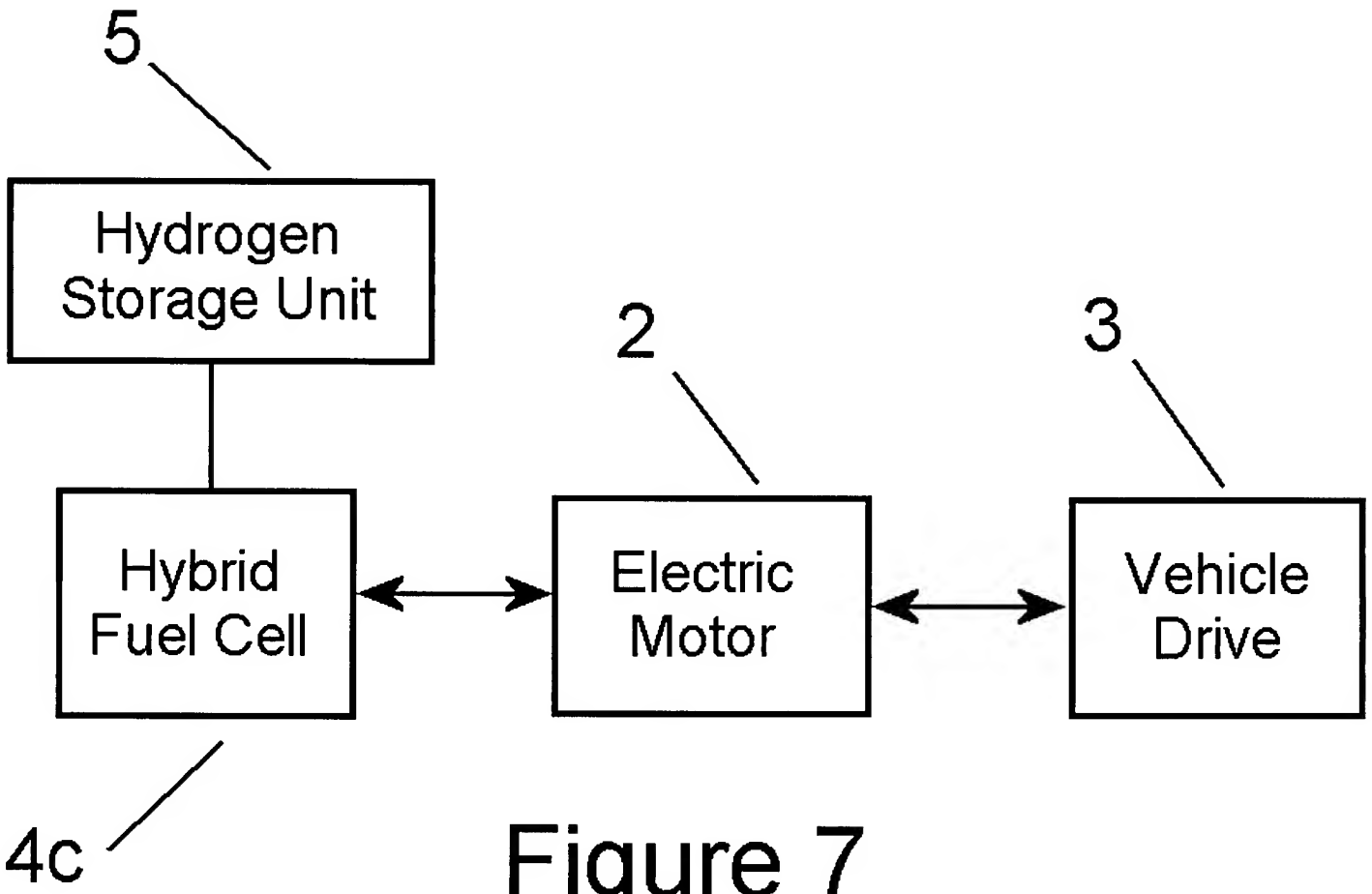

5
Hydrogen Storage Unit
2
3
Hybrid Fuel Cell
Electric Motor
Vehicle Drive
4c

Figure 7

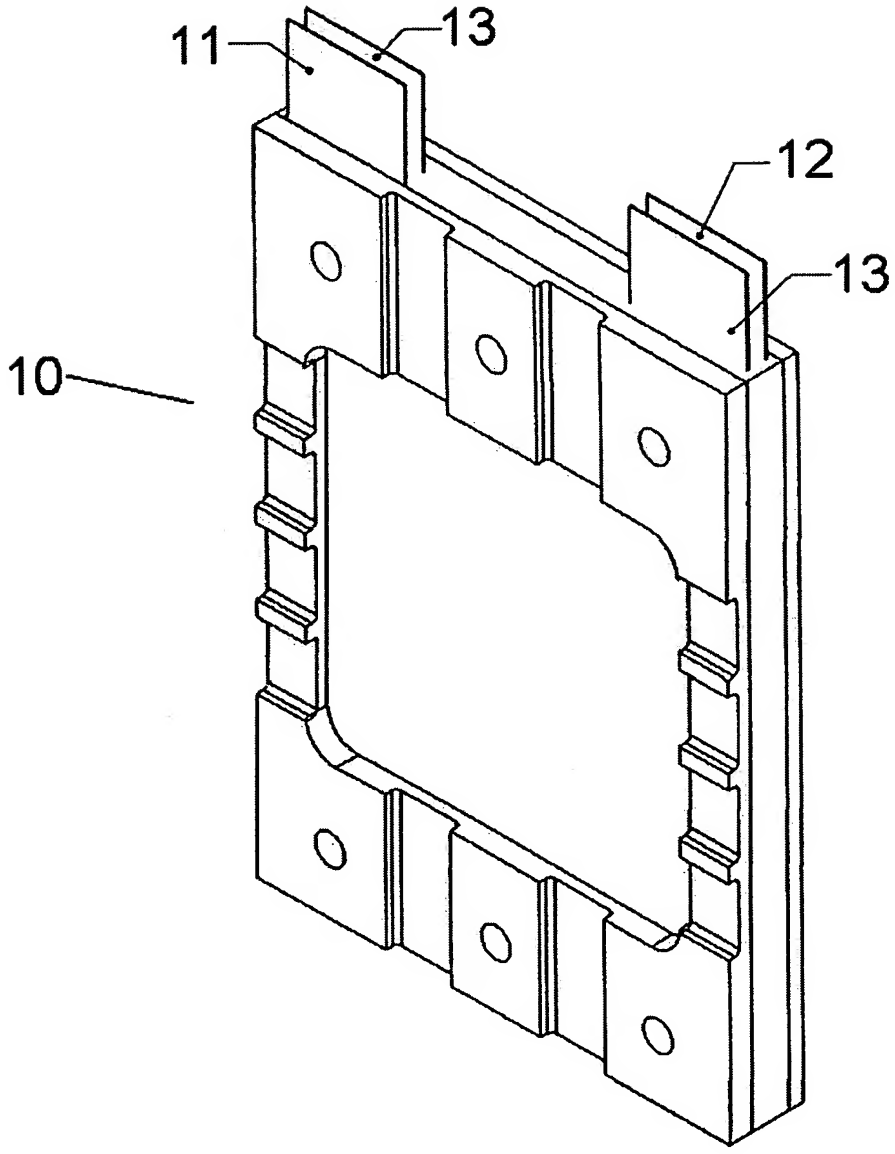


Figure 8

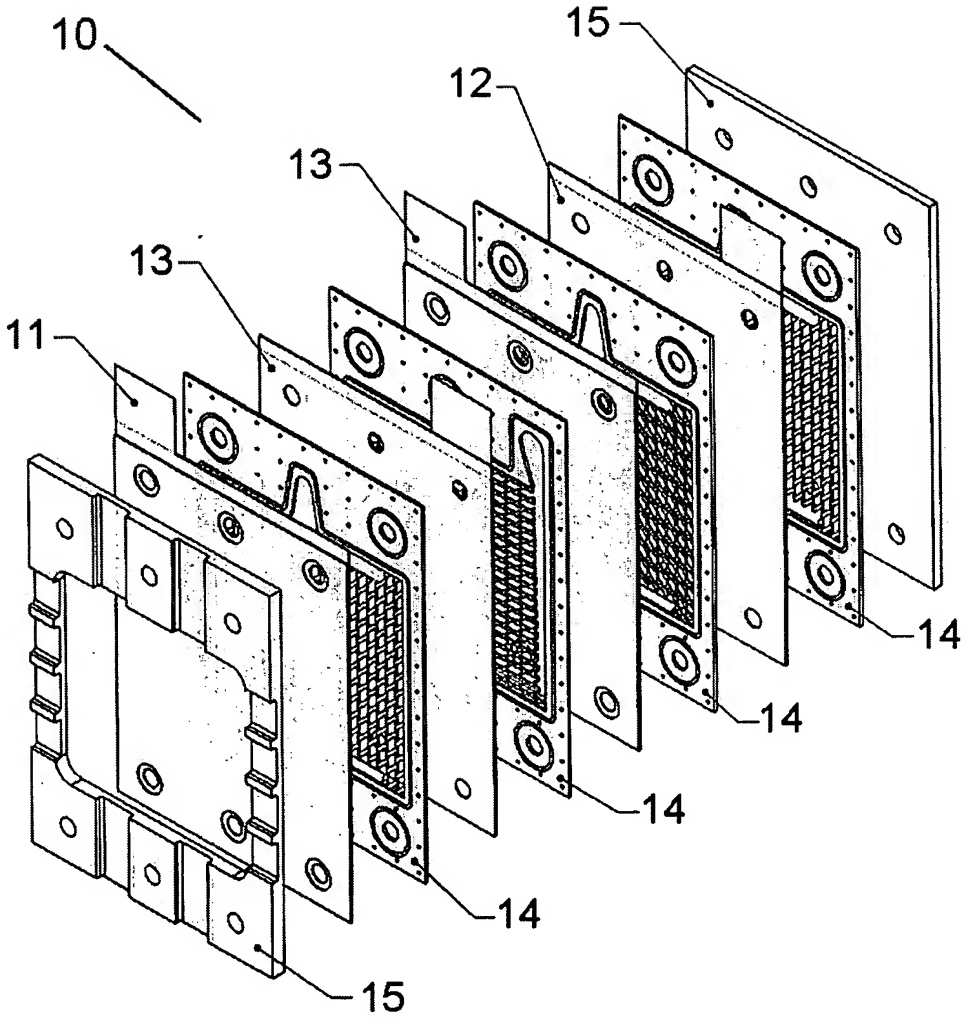


Figure 9

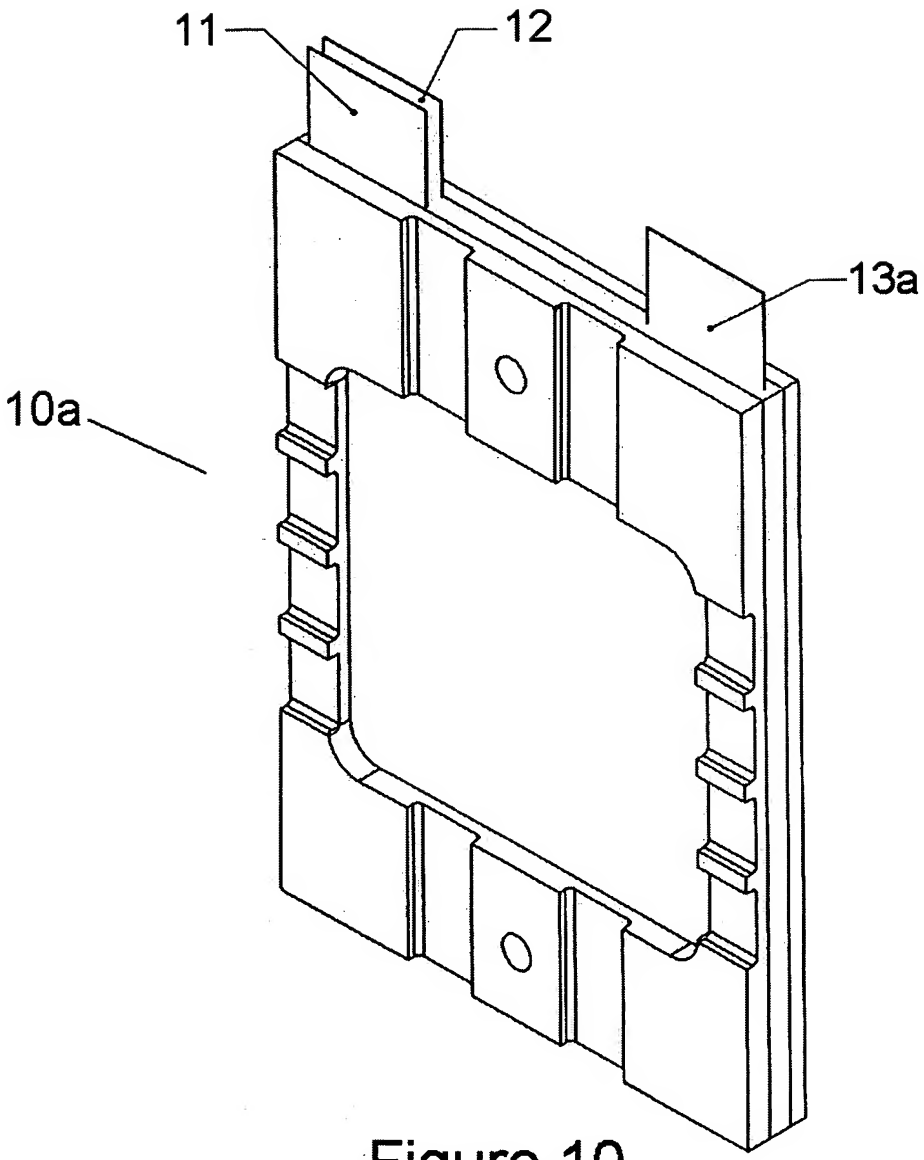


Figure 10

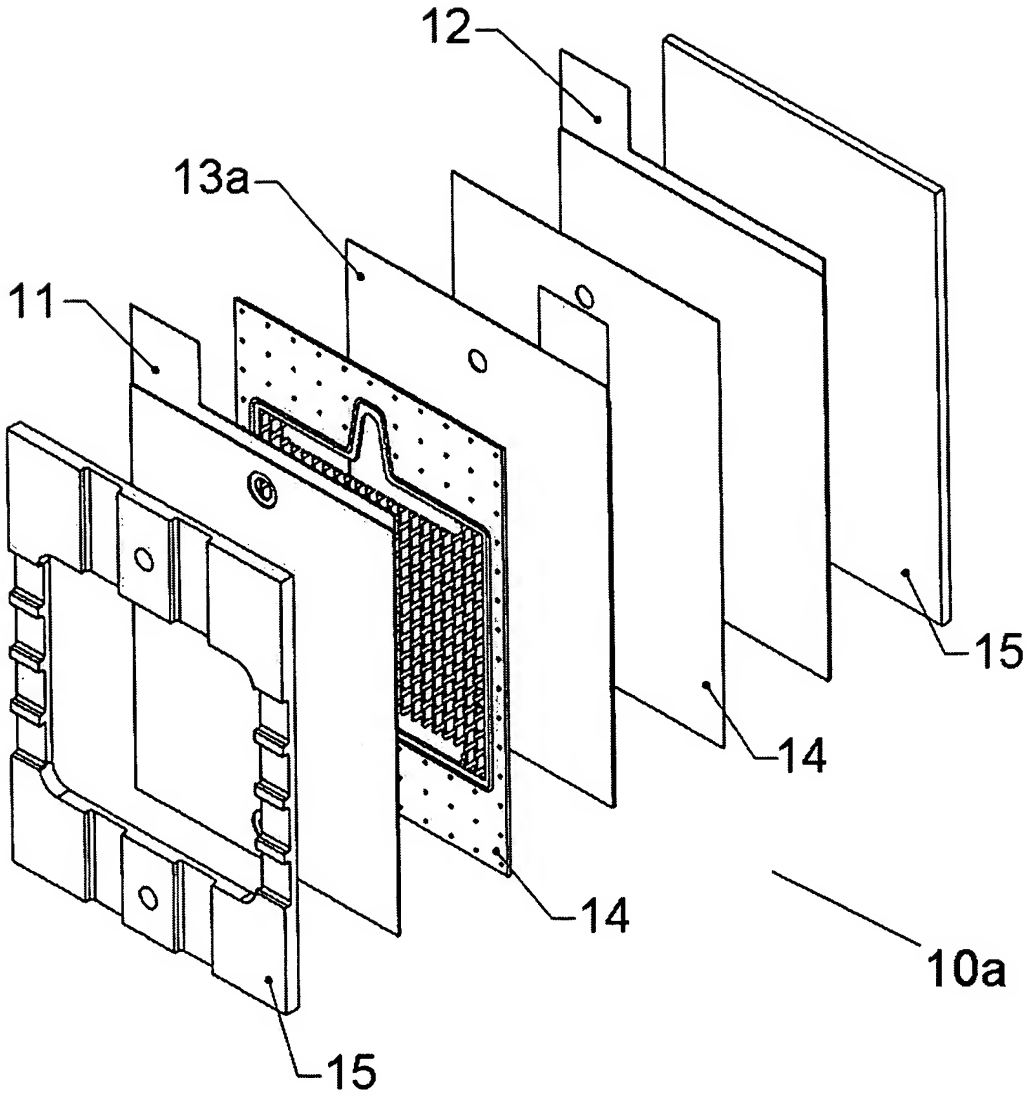


Figure 11

Figure 12

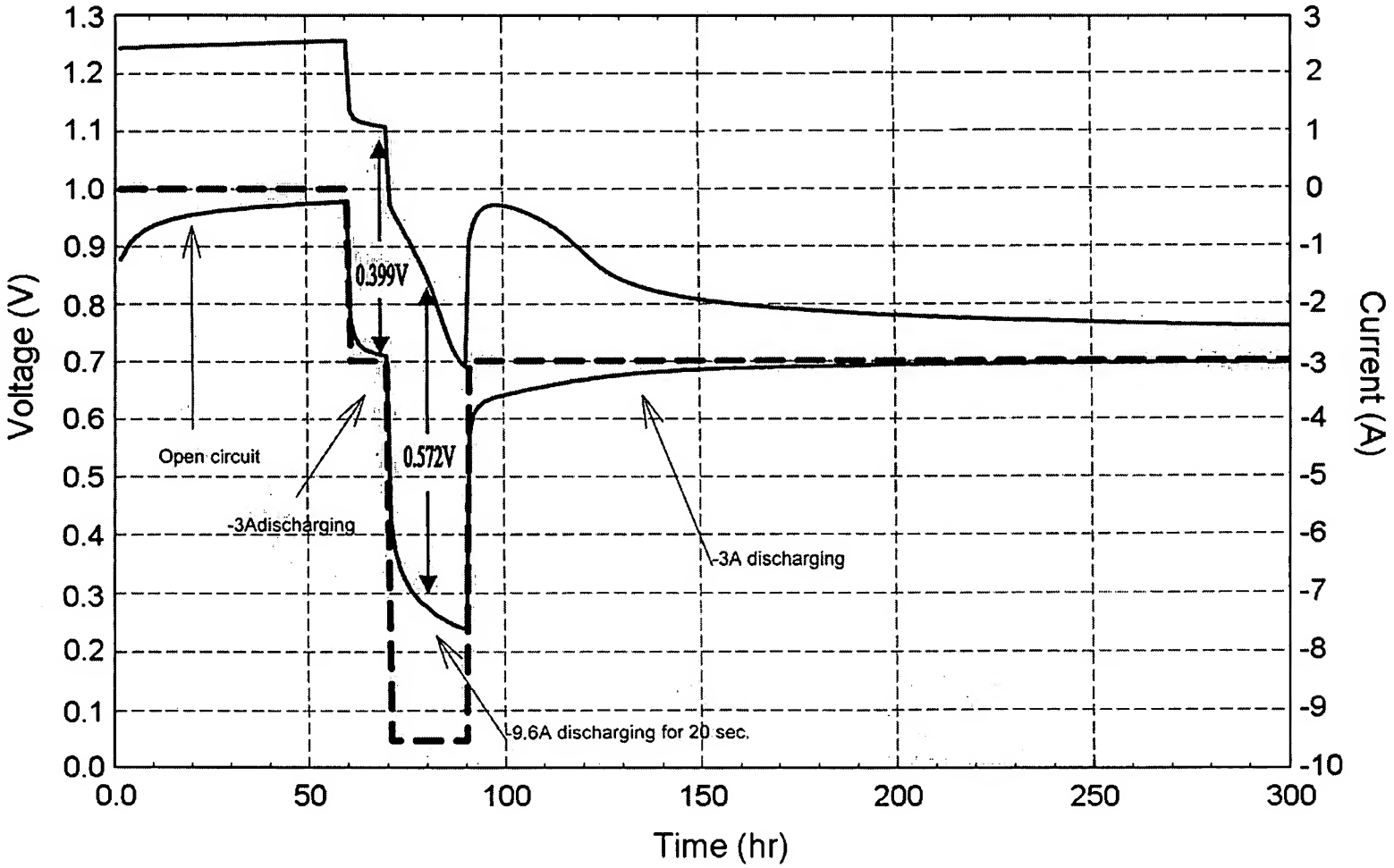

Voltage (V)
Current (A)
Time (hr)
0.399V
0.572V
Open circuit
-3Adischarging
-3A discharging
-9.6A discharging for 20 sec.

Figure 13

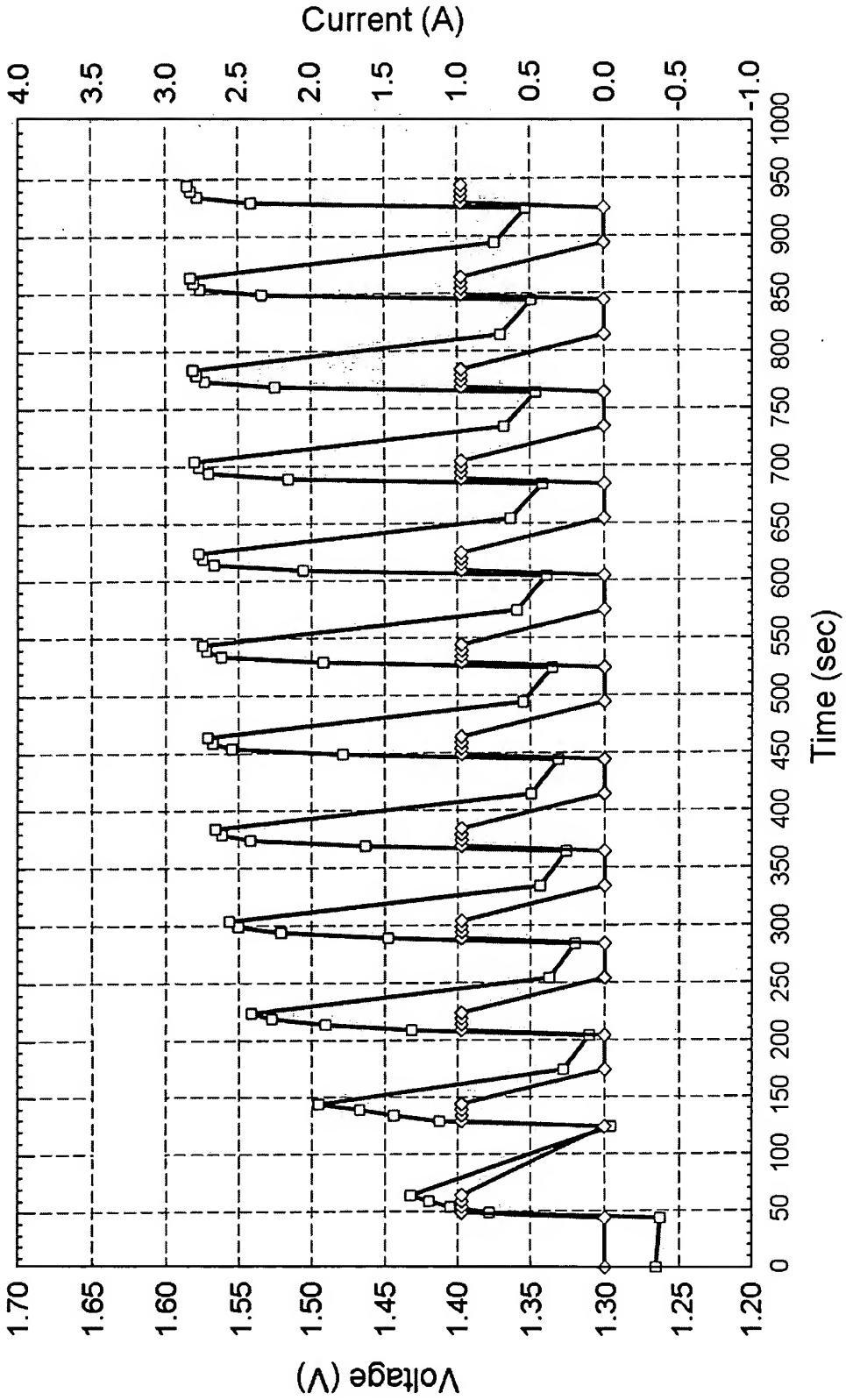
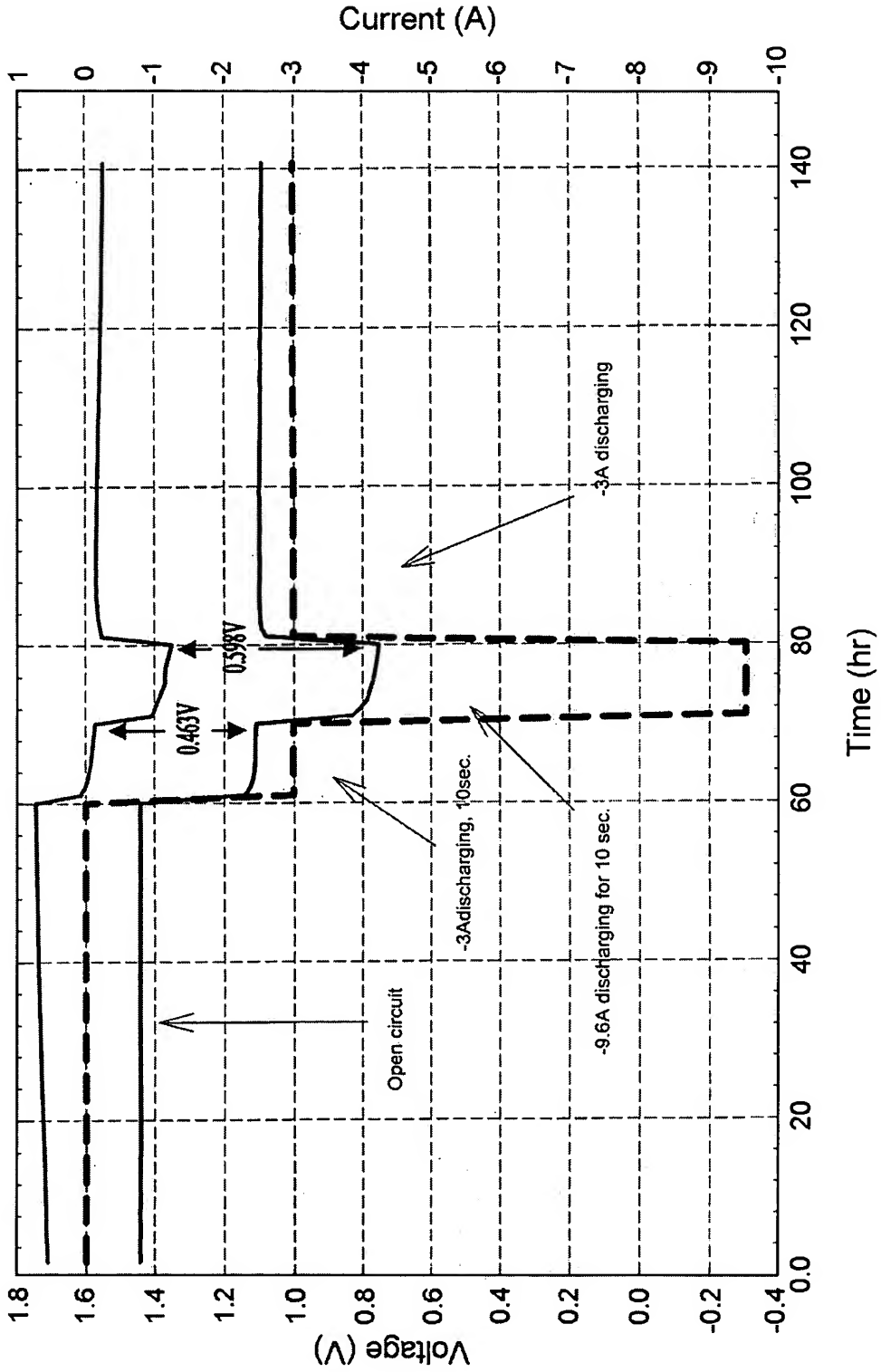

Current (A)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
Voltage (V)
1.70
1.65
1.60
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
0
50
100
150
200
250
300
350
400
450
500
550
600
650
700
750
800
850
900
950
1000
Time (sec)

Figure 14


Current (A)
Voltage (V)
Time (hr)
0.463V
0.598V
Open circuit
-3Adischarging, 10sec.
-9.6A discharging for 10 sec.
-3A discharging